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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|----------------------------------------------------------------------------|-------------|----------------------|-------------------------------|------------------|
| 10/785,204 | 02/23/2004 | Samer Kabbani | COHU1200 | 8839 |
| 22428 | 7590 | 10/06/2005 | | |
| FOLEY AND LARDNER SUITE 500 3000 K STREET NW WASHINGTON, DC 20007 | | | | |
| | | | EXAMINER KARLSEN, ERNEST F | |
| | | | ART UNIT 2829 | PAPER NUMBER |

DATE MAILED: 10/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/785,204

Applicant(s)

KABBANI, SAMER

Examiner

Ernest F. Karlsen

Art Unit

2829

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) 1-9 and 20-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>0204</u> . | 6) <input type="checkbox"/> Other: _____ |

Claims 1-9 and 20-23 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected inventions and/or species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on August 5, 2005.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 10 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Moulene et al. Moulene et al show, in Figure 6, a fluid heat sink having cooling tubes 9 which are considered to inherently create turbulence and thus three-dimensional flow. Element 16 is a heater element. With regard to claim 15, heater element 16 is between the interface surface and the heat sink structure.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 10-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moulene et al in view of Philpott et al. Moulene et al show, in Figure 6, a fluid heat sink having cooling tubes 9 and an electric heater element 16 but Moulene et al do not specifically address the feature of cross-flow of coolant in three dimensions. Philpott et al discloses a fluid heat exchanger with plural layers of microchannel heat exchanger structure which will maintain a

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cross-flow of coolant in three dimensions. See columns 3 and 4 of Philpott et al. It would have been obvious to one of ordinary skill in the art at the time of the invention to have adapted the fluid heat exchanger of Philpott et al for use in the apparatus of Moulene et al because one of ordinary skill in the art would realize that so doing would enable faster response time and more accurate control of the heat exchange function. With regard to claim 15, in Moulene et al, the heater element 16 is between the interface surface and the heat sink structure. With regard to claim 11, Philpott et al show conduits coupled to microchannels wherein the microchannels are in plural planes. With regard to claims 12 and 13, the conduits of both Moulene et al and Philpott et al are coplanar and adjacent. With regard to claim 14, orientation of the apparatus resulting from the combination of Moulene et al and Philpott et al is not considered a structural limitation. With regard to claims 16 and 17 Philpott et al show microchannel layers one below or above the other and parallel. With regard to claims 18 and 19, both Moulene et al and Philpott et al have flow paths that go in different directions and the flow paths in Moulene et al are in opposite directions. See Figure 7 of Moulene et al.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Abrami et al, Yamashita, Tuslaniwskyj et al and Furuya et al are cited to show additional apparatus similar to that of Moulene et al.

Any inquiry concerning this communication should be directed to Ernest F. Karlsen at telephone number 571-272-1961.

Ernest F. Karlsen

October 2, 2005


ERNEST KARLSEN
PRIMARY EXAMINER